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Unique and interactive effects of guilt and sympathy on bystander aggressive defender intervention in cyberbullying: The mediation of self-regulation

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ABSTRACT

Defending actions by bystanders may decrease the prevalence and adverse effects on victims of cyberbullying. While the defender bystander's role seems promising in lessening the incidence of cyberbullying, it remains crucial to distinguish between aggressive and constructive defending interventions since an aggressive intervention can spur on cyberbullying rather than prevent it. Despite its relevance, few studies have explored the factors surrounding bystanders' incidences taking aggressive defending interventions to stop cyberbullying. The present study examines the unique and interactive relationships between guilt, sympathy, and aggressive defending intervention in cyberbullying to reduce this gap. It also analyzes how self-regulation mediates the influence of moral emotions in this intervention. To do so, 1674 high school students were tested, 49.7% male ($Mage = 15.99$, $SD = 1.03$ years old) and 50.3% females ($Mage = 16.02$, $SD = 1.04$ years old). Results showed that guilt and sympathy have a unique and interactive direct negative relationship with self-regulation and bystanders taking aggressive defending interventions. Moreover, self-regulation partially mediates the negative unique and interactive relationship between guilt and sympathy with aggressive defending intervention. These findings emphasize the importance of considering the interaction between moral emotions and cognitive agentic processes when examining bystanders making defending responses in cyberbullying.

1. Introduction

Technology has changed how the world interacts (Chen & Hu, 2020; Organisation for Economic Cooperation and Development [OECD], 2017). The Information and Communication Technologies (ICT) have gained room and relevance in daily life worldwide, especially for how adolescents communicate, have fun, and learn (Burns & Gottschalk, 2019; OECD, 2018). Opportunities for identity formation (Cyr et al., 2015; Kurek et al., 2017), social relationships (Davis, 2012; Pruulman-Vengerfeldt & Runnel, 2012), and learning (Hu et al., 2018; Xiao et al., 2019) are all occurring while adolescents use ICT. Nonetheless, despite its well-known benefits, ICT misuse can also lead to serious harm

to individuals, such as physical, psychological, and social disorders (Baier et al., 2019; Marino et al., 2020; Paulus et al., 2018).

Cyberbullying has become one of the main misuses of ICT, creating extensive negative consequences (Chester et al., 2016; Giménez Gualdo et al., 2015; Rice et al., 2015). In Mexico, about 80% of adolescents have access to the internet and smartphones (National Institute of Geography and Statistics [INEGI], 2019a); still, the access to ICT continues growing. Unsurprisingly, similar to other developing countries, ICT misuse and cyberbullying represent a significant problem in Mexico. Whereas data estimates that up to 40% of adolescents worldwide might have experienced some form of cyberbullying (Brochado et al., 2017; Selkie et al., 2016), in Mexico, from 7% to 21% of adolescents are cyberbullied

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(INEGI, 2019b; National Institute for the Evaluation of Education, 2018; Madrid López et al., 2020).

Cyberbullying is defined as a repetitive and willful electronic communication to bully a person, typically by sending messages or posting information of an intimidating or threatening nature (Patchin & Hinduja, 2015; Tokunaga, 2010). Usually, cyberbullying causes stress, depression, anxiety, suicidal ideation, and antisocial behaviors in the victims (Bannink et al., 2014; Iranzo et al., 2019; Kim et al., 2019). In the context of school, cyberbullying involves intentional attacks by one or more students towards their peers using ICT (Smith et al., 2008; Tokunaga, 2010; Ybarra & Mitchell, 2004). This aggression may include direct (e.g., sending threatening messages) or indirect aggression (e.g., identity theft) (Buelga et al., 2020; Kokkinos et al., 2016).

Cyberbullying is often witnessing by a large audience of bystanders (Gahagan et al., 2016; Gini et al., 2008; Williford et al., 2013). According to some studies (DeSmet et al., 2016; Holfeld, 2014; Olenik-Shemesh et al., 2017), between 50% and 80% of adolescents have witnessed a cyberbullying event. Those witnesses, also known as bystanders, are essential to either stimulate or prevent the prevalence of cyberbullying events (DeSmet et al., 2019; Macaulay et al., 2019). Cyber-bystanders can stimulate these cyberbullying aggressions when joining (e.g., adding nasty comments), reinforcing (e.g., encouraging others), or remaining passive (e.g., ignoring it) (Bastiaensens et al., 2015; Williford et al., 2013; You & Lee, 2019). By contrast, when bystanders defend victims instead, they might reduce the prevalence of cyberbullying and even minimize its adverse effects on the victims (Allison & Bussey, 2016; DeSmet et al., 2016; Machackova & Pfetsch, 2016; Olenik-Shemesh et al., 2017; Song & Oh, 2018; Van Cleemput et al., 2014).

Cyber-defending behavior is a multifaceted construct. While all cyber defenders are assumed to be sympathetic with victims and trying to help, their different actions rely on different moral implications, and their effectiveness at stopping bullying also varies widely (Luo & Bussey, 2019). The current literature primarily distinguishes between 'constructive' and 'aggressive' defending interventions (Bussey et al., 2020; Luo & Bussey, 2019; Moxey & Bussey, 2020). A constructive intervention comprises assertive behaviors targeted to discontinue cyberbully (e.g., telling the cyberbully that picking on the other kid was mean and wrong) or supporting and comforting the cyber victims (e.g., telling the kid that it is not their fault that they were picking on). Aggressive interventions involve any violent response targeted to the aggressor in retaliation for cyber aggression (e.g., making threats to the bully). Some scholars (Bussey et al., 2020; Luo & Bussey, 2019; Machackova, 2020; Moxey & Bussey, 2020) assert that aggressive interventions are neither a morally responsible behavior nor an appropriate strategy to resolve interpersonal conflict. In fact, for Luo and Bussey (2019), an aggressive intervention should be considered cyberbullying, too. That is, its prevalence might perpetuate aggressive behaviors and worsening the situations rather than prevent them (Datta et al., 2016; Pronk et al., 2019). Although aggressive interventions by cyber bystanders are associated to furthering cyberbullying incidences, the literature scarcely reports on the factors that lead bystanders to use constructive rather than aggressive interventions.

Current studies only suggest that self-efficacy and lower moral disengagement seem to reduce aggressive defending interventions in cyberbullying (Bussey et al., 2020; Luo & Bussey, 2019; Moxey & Bussey, 2020). Therefore, further studies must examine the psychological variables that might replace aggressive defending interventions by constructive interventions in cyberbullying.

1.1. Theoretical framework

Although cyber bystander behavior has been explained through a variety of variables (Lambe et al., 2019), we adopted moral emotion theory (Arsenio & Lemerise, 2004; Haidt, 2003) social cognitive theory (Bandura, 1989) to guide our study. Using these theories results in a

framework to examine psychological factors that influence bystander defending behavior on cyberbullying (Domínguez-Hernández et al., 2018; Luo & Bussey, 2019; Machackova, 2020; Sarmiento et al., 2019; Tong & Talwar, 2020). However, these theories had not been used in the past to examine whether moral emotions (such as guilt and sympathy) and cognitive agentic variables (such as self-regulation) are associated with aggressive defending interventions in cyberbullying events.

1.1.1. Moral emotions

Moral emotions are critical in explaining aggressive behaviors (Arsenio, 2014; Malti & Krettenauer, 2013). In this regard, Turiel and Killen (2010) explained that moral emotions involve the perception of the sanctity of life and respect for others. As a result, individuals holding moral emotions are often interested in others' welfare (Haidt, 2003). Tracy and Robins (2007) asserted that these emotions could experience in diverse significant situations. Moral emotions are linked to moral standards; and, therefore, to prosocial behaviors in interpersonal relationships (Kroll & Egan, 2004; Menesini & Camodeca, 2008; Tangney et al., 2007). According to some scholars (Eisenberg, 2000; Haidt, 2003; Nelissen et al., 2013), moral emotions can be other-oriented and self-oriented.

Other-oriented moral emotions, such as sympathy, are related to people who suffer (Haidt, 2003; Tangney et al., 2007). Sympathy also involves the concern for ameliorating others' suffering (Eisenberg et al., 1989; Goetz et al., 2010). It includes a conscious desire for others' welfare (Chismar, 1988; Eisenberg et al., 2015). On the other hand, self-oriented moral emotions are evoking by self-reflection and self-evaluation about anticipated and actual behavior concerning personal moral values (Beer & Keltner, 2004; Ferguson & Stegge, 1998). These emotions are experiencing when a person attributes internal causes an event that has been appraised incongruent with moral standards (Eisenberg, 2000; Tangney et al., 2007). For some scholars (Drummond et al., 2017; Roos et al., 2014), guilt is the more adaptive moral self-oriented emotion; it involves a negative evaluation of specific behaviors and their consequences (Nelissen et al., 2013; Tangney & Dearing, 2002). Several studies (de Hooge et al., 2011; Leiberg et al., 2011; Lim & DeSteno, 2016; Olthof, 2012) have consistently associated guilt-proneness and sympathy to more constructive, empathic, and restorative responses in interpersonal interactions. Also, both emotions hinder relational aggression in adolescents (Onishi et al., 2011; Zuffiano et al., 2018).

Although well-established previous research underlines a positive relationship between sympathy for others' distress and guilt-proneness, and a negative effect of those moral emotions on aggressive behavior (Carlo, Crockett, et al., 2012; Carlo, McGinley, et al., 2012; Malti et al., 2016; Tangney et al., 2007), their interactive effects remain underexplored. There are two main reasons to suspect that the interaction of both moral emotions (sympathy and guilt) might intensify their unique effects on moral behaviors (Carlo, Crockett, et al., 2012). First, the sympathy for others' distress is an essential developmental precursor of prosocial behaviors, whereas guilt is often a response to individuals' misconduct only if sympathy experience (Hoffman, 1983; Tangney et al., 2007). Second, these moral emotions (guilt and sympathy) may influence aggressive behavior through a complementary mechanism. In other words, sympathy focuses on others' sufferings, which likely increases the individuals' need to help the victim. On the other hand, guilt entails negative feelings about the self, condition that leads individuals to take responsibility for infringing their moral standards and repair caused harm (Eisenberg et al., 2015; Ferguson et al., 2007). Regardless their relevance, previous research fails to explore the unique and interactive effects of guilt and sympathy on aggressive defender bystander intervention on cyberbullying. Therefore, guilt and sympathy should be explored as a critical moral emotion capable to shift from aggressive bystander defender behaviors to ones more positive in cyberbullying events (Conway et al., 2015; Mazzone et al., 2018; Midgett et al., 2017; Nocentini et al., 2020; Tendhar & Bueno de

Mesquita, 2020; Tong & Talwar, 2020).

1.1.2. Self-regulation

The social-cognitive theory is rooted in the agentic perspective of human development (Bandura, 1989). To be agentic is to influence intentionally one's behavior and exercise control over circumstances that affect their lives. Among the mechanisms of personal agency, self-regulation plays an important role. These mediate external influences and facilitate purposeful action (Bandura, 1989, 1991, 2000). Self-regulation is a psychological resource to refrain from impulsive behaviors instead of acting based on coherent long-term goals (Tangney et al., 2004). Self-regulation in moral domains undermines self-centered actions and promotes behavior that prioritizes protection and social justice in daily life (Silver & Silver, 2019). Hoffman and Fisher (2012) suggest that self-regulation may inhibit non-moral actions and supports initiating moral behavior. An adolescent with self-regulatory skills engages in less aggressive interpersonal behavior (Carlo, Crockett, et al., 2012; Memmott-Elison et al., 2020; Nie et al., 2016; Osgood & Muraven, 2015; Padilla-Walker & Christensen, 2010). Moreover, studies suggest that self-regulatory skills are associated with constructive defending behavior in bullying events (Erreygers et al., 2016; Jenkins et al., 2016).

Some scholars (Baumeister & Exline, 1999; Hoffman & Fisher, 2012; Tangney et al., 2004) posit that moral emotions may have a synergistic relationship with self-regulation in moral behaviors. Although previous studies have examined the influence of moral emotions and self-regulation of behavior, only a few have assessed the relationship between them. These suggest that self-regulation moderates the relationships between moral emotions and moral behavior because it leads individuals to prioritize care and fairness in interpersonal relationships (Gino et al., 2011; Hoffman, Meindl, Mooijman, & Graham, 2018; Silver & Silver, 2019).

1.2. The present study

This study sought to examine the direct and indirect relationships between moral emotions (guilt and sympathy), self-regulation, and bystanders taking aggressive defending intervention actions in cyberbullying events (see Fig. 1). To accomplish the following hypotheses were proposed: *Hypothesis 1* (unique direct relations of moral emotions): Both guilt and sympathy were expected to have a unique and interactive positive relationship with self-regulation and negatively with bystanders taking aggressive defending interventions; *Hypothesis 2* (direct relations of self-control): Self-regulation anticipate to have a negative relation to aggressive intervention; *Hypothesis 3* (interactive relations of moral emotions): We hypothesized that guilt amplifies both the positive relationships of sympathy with self-regulation and negative with bystander defender aggressive intervention; *Hypothesis 4* (mediate relations): Both guilt and sympathy expect to have a negative unique and interactive negative relationship with aggressive defending

interventions in cyberbullying; likewise, it would positively affect self-regulation; and *Hypothesis 5* (control variables): Being female will be positively associated to self-regulation and negatively to aggressive defending interventions.

2. Method

2.1. Participants

The sample came from 39 high schools located in urban communities in the state of Sonora, Mexico ($n = 85$ high schools, $p = .50$, $z = 90\%$, $e = 10\%$). The sample comprised 1674 students clustered in 272 classrooms from participant schools ($n = 922$ classrooms, $p = .50$, $z = 95\%$, $e = 5\%$). The study included 832 (49.7%) males ($Mage = 15.99$, $SD = 1.03$ years old) and 842 (50.3%) females ($Mage = 16.02$, $SD = 1.04$ years old); 661 (39.5%) of them were enrolled in 10th grade, 581 (34.7%) in 11th grade and 431 (25.7%) in 12th grade. Participant schools are similar to other public urban high schools in Mexico, which have low and middle socioeconomic status students (National Institute for the Evaluation of Education [INEE], 2018).

2.2. Measures

2.2.1. Sympathy

The Sympathy Scale (Valdés-Cuervo & Carlos-Martínez, 2017) was adapted to assess sympathy for the purpose of this study. The scale was adjusted to measure students' concerns for the suffering of peers as cyberbullying victims (e.g., "I feel worried about a classmate when he/she is treated unfairly on the Internet"; Cronbach's Alfa $\alpha = 0.90$; Composite reliability CR = 0.90, Average variance extracted AVE = 0.56). The instrument comprises six items with a five-point Likert scale response (0 = *completely disagree*, to 4 = *completely agree*). The confirmatory factor analysis (CFA) showed a good model fit to the data ($X^2 = 5.41$, $df = 4$, $p = .247$; Bollen-Stine bootstrap $p = .061$; SRMR = 0.005; CFI = 0.99; TLI = 0.98; RMSEA = 0.02 CI 90% [0.01, 0.05]). All item factor loadings were significant ($p < .001$) and ranged between 0.72 and 0.85.

2.2.2. Guilt

The guilt subscale was adapted from the Moral Emotions Scale (Thornberg et al., 2015). A back-translation was conducted for its translation from English to Spanish. Then, the subscale was adjusted to measure students' guilt after they witnessed cyberbullying incidents. The scale comprises five items (e.g., "I feel bad when one of my peers is attacked through the Internet, and I do nothing"; $\alpha = 0.94$, CR = 0.95, AVE = 0.52) with a five-point Likert-type scale response (0 = *completely disagree*, to 4 = *completely agree*). The CFA supported that the model fit the data ($X^2 = 4.94$, $df = 3$, $p = .176$; Bollen-Stine bootstrap $p = .21$; SRMR = 0.005; TLI = 0.99; CFI = 0.99; RMSEA = 0.02 CI 90% [0.01, 0.04]). All item factor loadings were significant ($p < .001$) and ranged between 0.76 and 0.84.

2.2.3. Self-regulation

The Self-Regulation Scale (Svensson et al., 2010) was used with the same back-translation method used before. Then, the scale was adjusted to assess students' self-regulation when they witness cyberbullying incidents. The scale comprises six items (e.g., "I get angry when a peer student is cyber attacked, I can hardly resist the temptation to harm the cyberbully," $\alpha = 0.89$, CR = 0.88; VME = 57). The five-point Likert-type scale response was used (0 = *Never*, to 5 = *Always*). The CFA suggests that the model fit the data ($X^2 = 7.71$, $df = 5$, $p = .174$; Bollen-Stine bootstrap $p = .15$; SRMR = 0.014; CFI = 0.99; TLI = 0.98; RMSEA = 0.05 IC 90% [0.02, 0.08]). All item factor loadings were significant ($p < .001$) and ranged between 0.66 and 0.81.

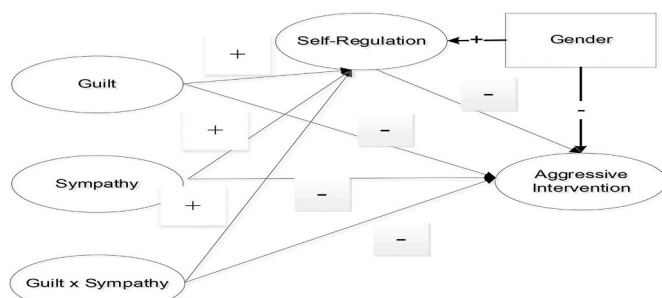


Fig. 1. Theoretical Structural Model of the Relations Between Guilt, Sympathy, Self-Regulation, and Aggressive Defending Intervention by Bystanders in Cyberbullying Events.

Note. Gender is a control variable; 0 = Male; 1 = Female.

2.2.4. Bystander aggressive defending intervention

The aggressive defending subscale from the Cyber Intervening Behavior Scale (Moxey and Bussey, 2020) was used. The back-translations procedure was used for the translation of the subscale from English to Spanish. Before testing students, they were told that “Cyberbullying involves intentionally repeatedly online aggressions using electronic devices.” Participants responded to five items on a five-point rating scale ranging from 0 (*never*) to 4 (*always*) in response to the questions (e.g., “How often have you aggressively responded to cyberbullies to defend a school peer during the last term?”). In the study, the subscale had an acceptable reliability ($\alpha = 0.84$; CR = 0.82; AVE = 0.51). AFC revealed that the measurement model fit the data ($X^2 = 6.14$, $df = 4$, $p = .189$; Bollen-Stine bootstrap $p = .36$; SRMR = 0.005; CFI = 0.99; TLI = 0.99; RMSEA = 0.02 CI 90% [0.01, 0.04]). All item factor loadings were significant ($p < .001$) and ranged between 0.70 and 0.84.

2.2.5. Control variable

Gender (0 = *male*, and 1 = *females*) was used as a control variable to account for the differences in constructive or aggressive bystander behavior related to this variable rather than the adolescents’ moral emotions and self-regulation. Girls have previously reported having higher guilt and sympathy in moral conflict (Furukawa et al., 2012; Mazzone et al., 2018; Thornberg et al., 2015), self-regulating behavior (Orkibi et al., 2018; Silver & Silver, 2019), and less cyberbullying than boys (Campbell et al., 2020; Moxey & Bussey, 2020; Rebollo-Catalan & Mayor-Buzon, 2020).

2.3. Procedure

The study gained approval from the Research Ethical Committee of the Technological Institute of Sonora. Principals from selected schools were invited to participate in the study. After all of them agreed to participate in the study, a consent letter was sent to parents to ask permission for their children’s participation. Only 3% of parents refused to allow children to participate in the study. All research participants have explained the purpose of the study and the nature of their participation. All the volunteers responded to the instruments aimed to measure all the constructs proposed in the study. Data were collected during school hours in school classrooms.

2.4. Data analysis

Missing values were less than 3% of the data. They were treated using the multiple imputation procedure available in SPSS. Then, descriptive (median and deviation standard), correlation, and *t*-test statistics were calculated for all the variables. All confirmatory factorial analysis (CFA) and structural equation models were conducted using the AMOS software. The CFA and structural model analysis used the maximum likelihood estimation (ML) with Bollen-Stine and bias-corrected confidence intervals bootstrap (500 replications with 95% CI) because the value of the Mardia coefficient suggests that data did not present multivariate normality (Mardia coefficient = 10.43). The bootstrap is a robust method for dealing with multivariate non-normality issues (Arbuckle, 2017; Hancock & Liu, 2012). To evaluate a global fit of the measurement model, we used: (a) Chi-squared and associate probability (X^2 with $p > .001$), Bollen-Stine bootstrap p associate $> .05$, standardized root mean square residual (SRMR ≤ 0.05), Tucker-Lewis index (TLI ≥ 0.95), comparative fit index (CFI ≥ 0.95), and root mean square error of approximation (RMSEA ≤ 0.05) (Bollen and Stine, 1992; Byrne, 2016; Sharma et al., 2005). Indirect relations were calculated using the bias-corrected confidence interval (500 replications with CI 95%) AMOS bootstrapping.

3. Results

3.1. Descriptive and bivariate inferential analysis

Table 1 shows that students rarely expressed experiencing guilt and sympathy in cyberbullying events. Likewise, students showed moderate self-regulation while dealing with cyberbullying incidents. However, they seldom aggressively intervened to defend cyber victims. The correlational (Pearson correlations) analyses showed that guilt, sympathy, self-regulation, and aggressive defending behavior were negatively correlated. The values of these correlations suggest a medium effect size, which indicates explanatory and practical use in the short and long term (Funder & Ozer, 2019).

3.2. Structural model

Results also suggest that the structural model had a good fit to the data ($X^2 = 78$, $df = 55$, $p = .022$; Bollen-Stine bootstrap $p = .075$; SRMR = 0.05; CFI = 0.97; TLI = 0.95, RMSEA = 0.04, CI 90 [0.02, 0.07]). The model explains 33% of the variance in aggressive defending intervention by bystanders in cyberbullying events of this study (see Fig. 2).

The direct relationship showed that guilt and sympathy were positively related to self-regulated behaviors ($\beta = .18$, CI 95% [0.15, 0.23], $p < .001$; $\beta = 0.28$, CI 95% [0.22, 0.33], $p < .001$ respectively), and negatively related to aggressive defending intervention ($\beta = -0.16$, CI 95% [-0.11, -0.24], $p < .001$; $\beta = -0.32$, CI 95% [-0.25, -0.39], $p < .001$ respectively). Also, self-regulation had a negative influence on aggressive intervention ($\beta = -0.24$, CI 95% [-0.17, -0.30], $p < .001$). Additionally, interaction between guilt and sympathy amplifies their unique influence on self-regulation ($\beta = 0.30$, CI 95% [0.25, 0.34], $p < .001$), and on aggressive which aggressive defender interventions ($\beta = -0.35$, CI 95% [-0.29, -0.43], $p < .001$).

In regard to the mediating relationship, results showed that guilt ($\beta = -0.11$, $p = .015$, CI 95% [-0.08, -0.15]) and sympathy ($\beta = -0.18$, $p < .001$; CI 95 [-0.15, -0.25]) have a unique negative indirect effect on aggressive defending intervention by their positive association to self-regulation. Moreover, interaction between guilt and sympathy increase indirect negative effect of both moral emotions with aggressive defending intervention ($\beta = -0.23$, $p < .001$, CI 95% [-0.20, -0.26]).

3.3. Control variable

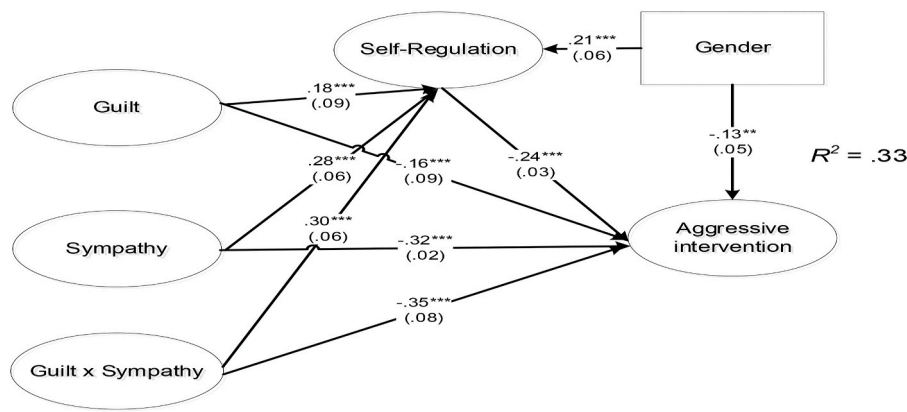
In the proposed model (see Fig. 2), gender was significantly related to self-control and aggressive defending intervention in cyberbullying. Specifically, the results showed that being female was positively related to self-regulation ($\beta = 0.21$, CI 95 [0.13, 0.26], $p < .001$) and negatively related to aggressive intervention ($\beta = -0.13$, CI 95 [-0.11, -0.18], $p < .001$).

Table 1

Means, standard deviations, correlations, and mean comparisons by gender between variables involved in the study.

Variable	M	SD	1	2	3	4
1. Guilt	1.05	1.41	–			
2. Sympathy	2.03	1.25	.34***	–		
3. Self-regulation	2.40	1.13	.23**	.32***	–	
4. Aggressive intervention	1.70	1.19	-.22**	-.46***	-.23***	–
M/SD			.96/1.32	1.76/	2.20/	1.83/
Male				1.22	1.13	1.10
Female			1.13/	2.30/	2.59/	1.53/
			1.49	1.22	1.09	1.10
Students <i>t</i>			–2.43**	–8.99**	–7.19**	6.20**
Cohen <i>d</i>			.12	.44	.35	.30

* $p < .05$. ** $p < .01$. *** $p < .001$.



Note. 0 = Male; 1 = Female; Standardized coefficients and standard errors are presented.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Fig. 2. Results of the structural model showing the relations between guilt, sympathy, self-regulation, and aggressive defending intervention in cyberbullying events. Note. 0 = Male; 1 = Female; Standardized coefficients and standard errors are presented. * $p < .05$. ** $p < .01$. *** $p < .001$.

4. Discussion

Many studies suggest that moral emotions are essential for developing an individuals' moral personality (Leiberg et al., 2011; Olthof, 2012). Thus, it is possible to speculate that moral emotions are pretty capable of predicting behaviors in adolescents. Although we still know little about the association between moral emotions and aggressive behavior, we posit that besides hindering interpersonal aggression, moral emotions can foster other social cognitions. Therefore, the purpose of this study was to examine the unique and interactive influences of guilt and sympathy on aggressive defending interventions on cyberbullying and how self-regulation mediates these relationships. The findings reported above supported the hypotheses proposed by the authors.

4.1. Unique and interactive influence of guilt and sympathy

Guilt and sympathy had a uniquely direct relationship with adolescents' self-regulation in the study. These findings are consistent with previous studies (Erreygers et al., 2016; Memmott-Elison et al., 2020; Silver & Silver, 2019; Tong & Talwar, 2020; Van Cleemput et al., 2014) that reported that moral emotions tend to stimulate adolescents' self-regulation. These emotions serve as behavioral drivers in the sense of what should or should not be doing (e.g., prescriptive morality). In cyberbullying, the role of moral emotion is critical due to the self-regulated aggressive behavior developed as a natural response to the set of moral values that individuals hold (Hoffman et al., 2018; Janoff-Bulman et al., 2009). In other words, results confirm that moral emotions provide a negative-positive feedback loop, via guilt and sympathy, respectively, that motivate adolescents to self-regulated short-term aggressive impulses and replace them with other pro-social forms to resolve interpersonal conflicts.

Additionally, findings suggest that guilt and sympathy have a unique and interactive negative influence on bystanders' aggressive defending interventions in cyberbullying. This finding is consistent with previous studies (Lim & DeSteno, 2016; Tendhar & Bueno de Mesquita, 2020) reporting negative moral emotions on aggressive behavior. A crucial result is that the interaction between self-oriented and other-oriented moral emotions increases morality's effects in preventing bystanders from making aggressive interventions. Although further studies are necessary, results suggest that aggressive interventions are likely associated with moral development difficulties or the assumption that

aggression is a moral strategy for obtaining desired outcomes in interpersonal conflicts.

4.2. Self-regulation influences

According to other scholars (Hoffman, 1998; Hoffman et al., 2018; Joosten et al., 2015), our findings indicate that self-regulation hinders bystanders' aggressive defending intervention in cyberbullying events. Additionally, self-regulation partially mediates the negative influence of both guilt and sympathy on aggressive defending interventions. These results reaffirm that self-regulation is a powerful and beneficial personal asset that inhibits aggressive behavior (Carlo, Crockett, et al., 2012; DeWall et al., 2007; Silver & Silver, 2009; Tangney et al., 2004). Furthermore, findings are in line with Rest's (1983) model of morality. Rest suggests that self-regulation is a psychological resource that would enable individuals to inhibit self-fish impulses and help initiate a moral behavior.

4.3. Gender as control variable

Gender is a moderator variable significantly associated with mediate and outcome variables in the study. Being female was positively related to self-regulation and negatively to aggressive intervention. These findings are similar to the previous studies, which show that girls hold higher levels of self-regulation in interpersonal conflict (Orkibi et al., 2018; Silver & Silver, 2019), and therefore, are less aggressive than boys when intervening in bullying and cyberbullying events (Campbell et al., 2020; Rebollo-Catalan & Mayor-Buzon, 2020). The cultural context might partially explain this result. Due to their social role in society, Mexican women are expecting to practice the moral values fostered at home and act as role models in and out of the home (Díaz-Loving et al., 2011; Gump et al., 2000).

4.4. Strengths, limitations and future directions

Although aggressive defending interventions are not associated with reducing cyberbullying and can be related to further cyber perpetration (Luo & Bussey, 2019), the studies that analyze the factors associated with this type of intervention are limited. To our knowledge, this is the first study aimed to investigate the direct and mediating relationships between moral emotions, socio-cognitive psychological resources, and aggressive defending interventions of bystanders in cyberbullying

events.

The present study also examined the unique and interactive direct and mediate influences of self-oriented (guilt) and other-oriented (sympathy) moral emotions on aggressive defending interventions in cyberbullying events. One point to highlight is that the interaction between both types of moral emotions increases their effect in reducing aggressive intervention. Moreover, findings showed that self-regulation is a cognitive agentic process that diminished violence in interpersonal relationships. Also, it suggests that self-regulation mediates the influence of moral emotions in response to others' provocation in response to aggression. The study highlights the importance of considering moral emotions and cognitive psychological resources when examining bystanders' defending behaviors in cyberbullying. Study findings suggest that females are less prone to adopt aggressive defending intervention than males in cyberbullying events, then further research is needed to understand the role of gender in this behavior.

However, the study has several limitations that are worth mentioning. First, the cross-sectional design does not allow the examination of causal relationships between the variables studied. A longitudinal design for clarifying the possibility of bidirectional relationships between these variables overtime is necessary for further studies. Second, the results rely on these students' self-reported data, who may have been hesitant to admit they felt guilt or sympathy. Therefore, future studies should include multiple measurement methods (peer-nomination or interview) to determine the structural model's cross-validation. Third, we did not include moral disengagement in our study design. Nonetheless, further studies are needed to explore the relationship of both guilt and sympathy with moral disengagement mechanisms to predict the kind of intervention of bystander defenders. Lastly, the student sample came from urban schools in the northwest of Mexico, which may differ from other schools (for example, rural and indigenous students). Future research should be conducted with diverse samples of students across Mexico.

Further research examining the influences of other aspects of morality, such as moral judgment, moral identity, and moral self-schemas, is necessary to understanding how moral development is associated with bystanders using aggressive defending intervention in cyberbullying. Moreover, studies exploring other cognitive agentic processes that involve regulating behavior in interpersonal relationships (e.g., self-efficacy, locus of control) are necessary. Finally, further research would benefit from considering the impact of context variables on the relationships between moral emotions, self-regulation, and aggressive defending intervention.

4.5. Theoretical and practical implications

The study shows that moral emotion theory (Arsenio & Lemerise, 2004; Haidt, 2003) is a valuable framework to understand cyber bystander behavior. It also added to the evidence that both guilt (self-oriented) and sympathy (other-oriented) have a direct and interactive negative association with aggressive defending interventions in cyberbullying. These results match social cognitive theory (Bandura, 1989), which emphasizes the role of individual cognitive agentic processes, such as self-regulation, in defending behavior in cyberbullying. Overall, these findings underline the relevance of moral emotions and cognitive agentic processes in cyberbullying.

These findings have practical short and long-term implications for academic programs to replace aggressive defending interventions in cyberbullying with constructive responses. The study underlines the importance of intervening at an individual level, particularly in the moral and self-regulatory agentic processes. Interventions to replace aggressive defending interventions with constructive ones can target actions to promote adolescents' guilt, sympathy, and self-regulation when managing interpersonal conflict situations.

Credit author statement

A.A. Valdés-Cuervo: Conceptualization, Funding acquisition, Methodology, Formal analysis, writing, Supervision, and the Revision of the manuscript. C. Alcántar-Nieblas: Formal analysis, Methodology and writing. L.G. Parra-Pérez: Writing, revision of the manuscript and Supervision. F.J. Álvarez-Montero: Conceptualization, Formal analysis, and writing., H. Reyes-Sosa: Methodology, Formal analysis and writing.

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